Communicable Disease UPDATE

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Hepatitis A Infection Among Injection Drug Users and Homeless Persons

Since November 2003, reported cases of hepatitis A in Massachusetts have increased significantly over previous years. The increase was initially observed in Hampden and Suffolk counties, but more cases are now occurring in other parts of the state. From July through October 2003, fewer than 8 cases of hepatitis A were reported each month in Hampden, Suffolk, Middlesex and Norfolk counties combined. In February 2004, over 40 cases were reported from these four counties. Many of the cases have occured in people with similar characteristics, including unemployment, homelessness, injection drug use, other drug use or recent or current incarceration.

Hepatitis A is a viral disease spread mainly though the fecal-oral route (person-to-person or foodborne). Bloodborne transmission occasionally occurs. The incubation period ranges from 15 to 50 days with an average of 25 to 30 days. Most people with hepatitis A have little in the way of signs and symptoms. People are most infectious from the two weeks prior to symptom onset through one week after symptom onset. Symptoms may include fever, malaise, jaundice, anorexia and nausea. Diarrhea may also be present.

The best way to prevent the spread of hepatitis A virus is improved personal hygiene (handwashing). Hepatitis A vaccine is also a way to prevent infection and is recommended for routine preexposure immunization for certain high risk groups. Close contacts of a confirmed case should receive immune globulin (IG) within 2 weeks of exposure to the case. If given within 2 weeks, IG is more than 85% effective in preventing illness.[1] Close contacts include all household contacts, sexual contacts, persons sharing food, beverages or eating utensils with the case, or persons sharing drugs and/or drug paraphernalia with the case.

In the current situation in Massachusetts, several measures have been implemented. IG is being given to all identified close contacts of confirmed cases to prevent additional cases. In order to curtail a larger outbreak, a campaign is underway to vaccinate as much of the at-risk population as possible. Although hepatitis A vaccine is routinely administered as a 2 dose series, one dose of vaccine confers immunity in most adults within one month of vaccination.[2] Because the supply of the vaccine is limited, vaccine is being targeted to populations at highest risk of infection. Up to 7,000 doses of vaccine will be provided through various community outreach organizations, public health agencies and correctional facilities. In addition, information about hepatitis A was sent to all substance abuse treatment facilities, correctional facilities, HIV counseling and testing programs, HIV prevention and education programs, and homeless shelters.

Hepatitis A is usually a sporadic disease with spread limited to close personal contacts. In Massachusetts, foodborne outbreaks occur infrequently and community-wide outbreaks are rare. Injection drug users are at higher risk for hepatitis A, and outbreaks among drug users have been documented in other states.[3] The current outbreak in Massachusetts presents a challenge because the population at risk is potentially large, widely dispersed and difficult to reach. Controlling the outbreak will require a sustained effort by many public health outreach workers working with community partners.

[1, 2]Red Book, 2003 Report of the Committee on Infectious Disease, American Academy of Pediatrics.

[3] Epidemiologic Notes and Reports: Hepatitis A among drug abusers, MMWR, 37(19); 297-300,305, 1988.

Revised Reportable Diseases, Surveillance, and Isolation and Quarantine Requirements

Effective February 13, 2004, 105 Code of Massachusetts Regulations 300.000: *Reportable Diseases, Surveillance, and Isolation and Quarantine Requirements* were updated to incorporate new federal communicable disease surveillance recommendations and the latest recommendations for isolation and quarantine. Specifically, severe acute respiratory syndrome (SARS) and monkeypox have been added to the list of reportable diseases. To provide further clarity related to food handling, the term "food handler" was expanded. A new section was incorporated authorizing the Massachusetts Department of Public Health, Center for Environmental Health to collect data on individuals evaluated or diagnosed with specifically listed diseases possibly linked to environmental exposures. The revised regulations and a summary of changes is available on line at http://www.state.ma.us/dph/. Click on the "Reportable Diseases and Isolation and Quarantine Requirements" link on the right side of the page.

Inside

Epidemiology

Hepatitis A Outbreak In Ludlow, MA

On March 16, 2004, more than 1,100 people were screened at the Ludlow Town Hall for potential exposure to hepatitis A virus. Approximately 790 doses of prophylactic immune globulin (IG) were administered to people who had dined at the Two Brothers Pizza restaurant in Ludlow between March 1 and March 12. On Friday March 12, 2004 the public health nurse in Ludlow, Doreen Rae, had been notified that there was a confirmed hepatitis A case in her town. She discovered, during case investigation, that this case was in a food handler working in this popular pizza shop. Individuals from Ludlow, Chicopee and other surrounding towns, including people from regions as distant as Cape Cod, attended the clinic.

In response to this public health emergency, the Massachusetts Department of Public Health (MDPH) Western Regional Office dispatched members of its DPH Region 1 Response Team to assist the Ludlow Heath Department. Additional staff arrived from the State Laboratory Institute in Jamaica Plain.

The Western Massachusetts DPH Response Team was established in the late fall of 2003 as part of the state bioterrorism response program. According to Charlie Kaniecki, District Health Officer for Region 1, "Given the size and diversity of Western Massachusetts, it became apparent that we were overlapping on many different levels and there was a natural need for us to combine our resources to act as a unit to protect the public health; not just in the event of bioterrorism, but in response to the natural course of events that unfold in society at large."

The Western Massachusetts DPH Regional Response Team presently consists of the district health officer, a local preparedness coordinator, a health educator, an infectious disease response nurse, a public health nurse, a zoonotic disease specialist, a Massachusetts Alert Network administrative support person, a strategic national stockpile coordinator, the MDPH immunization program nursing supervisor, a regional epidemiologist for vaccine preventable diseases, a regional Immunization Program nurse and an administrative aide.

"The call came at 5:00 P.M. on Friday afternoon," said Kaniecki, "and this was going to be the first time that we actually mobilized to do a vaccination clinic. Last year we had a situation where some of us went to the town of Stockbridge to monitor for SARS in busloads of tourists coming from Toronto Canada for a religious pilgrimage. We are becoming a unit whose purpose, is in part to assist the locals."

Other members of the Western Mass. DPH Response Team echoed this sentiment. People really appreciate the presence of a DPH response team," said Laurel Pelis, the DPH Public Health Nurse. "They really appreciate knowing that we're here to help on a day to day basis, and not just in times of crisis."

Barbara Coughlin, Health Educator for Western Mass. DPH, had this to say about the Team concept; "I think that the concept is excellent. We have been able to identify one another as players on a day to day basis and not just on a response basis. In my role as the health educator, my job is to assist in getting the message out to the target audiences and make connections with the correct people within the state system. Everything that I needed to respond to the situation effectively was *there*, right down to the telephone numbers to contact people through a telephone tree that was set up by the Team. I had access and was able to communicate quickly with the Ludlow nurse as well as the state epidemiologists. I was even able to have a discussion with the Strategic National Stockpile (SNS) people about the "what ifs" regarding the amount of prophylactic IG available."

Regarding the clinic, Laurel Pelis said, "I had not had the experience of being involved in something on such a large scale. From my vantage point in the clinical setting, being with ten or twelve other nurses, it just seemed to flow very smoothly. People really worked well together."

During the event itself, the DPH Response Team took assigned roles. Charlie Kaniecki operated as the designated Incident Commander, Barbara Coughlin took the role of the Planner and Logistics Officer, Donna DiMartino acted as the Safety Officer, while other members took on other responsibilities. Immunization was handled by Laurel Pelis and Helen Taugher, as well as a number of other volunteer nurses from the area, while Marija Popstefania provided screening for individuals and families. Donald Snyder stepped into the role of Support Staff, Claudia Sarti acted as the Press Liaison, with Doreen Rae, Ludlow public health nurse, functioning as the local liaison between state and local health departments.

Following the September 11 attacks on the World Trade Center in 2001, a National Collaborative Training Plan was proposed by the Centers for Disease Control and Prevention (CDC) in 2002 which outlined essential strategic elements for preparing a competent public health workforce. These elements have been applied nationwide in an effort to develop training plans to address public health emergency and/or bioterrorism preparedness and response.

As part of the Western Massachusetts initiative to train health care workers and other professionals, the Western Massachusetts Regional office of MDPH has encouraged and facilitated a variety of trainings. Trainings are diverse in nature and include the proper use of protective clothing in the event of chemical or biological hazards (an event sponsored by The New England Consortium), to foodservice training for food sanitation personnel and regulatory officials. "The goal is to create seamless operation between state and local government in times of public health emergencies, crises and disasters," said Kaniecki.

Pneumococcal Conjugate Vaccine (PCV7) Shortage More *Severe* — Need to Defer 3rd AND 4th Dose

Due to a continuing and growing shortage of pneumococcal conjugate vaccine (PCV7) nationwide, in March 2004 the Centers for Disease Control and Prevention (CDC), in consultation with the Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians (AAFP) and the American Academy of Pediatrics (AAP) made recommendations to defer the 3rd and 4th dose of PCV7. It is projected this shortage may continue until at least the summer of 2004 (CDC. MMWR Dispatch 2004;53/March 2:1-2. URL: http://www.cdc.gov/mmwr/pdf/wk/mm53d302.pdf).

Immunization Recommendations During the *Severe* Shortage

In order to conserve vaccine supplies, CDC and the other national advisory bodies are recommending that all health care providers, regardless of current inventories at their individual offices:

1. Continue to vaccinate all high risk children with the complete PCV7 series.
2. Defer the 3rd and 4th dose for healthy children < 24 months of age (including those in child care).
   - *Institute a 2-dose schedule for these children.*
3. Defer PCV7 for healthy children 24-59 moths of age

Recommendations for Pneumococcal Conjugate Vaccine Use Among Healthy Children without Risk Factors, During the *Severe* Shortage	
Age of 1st PCV7 Vaccination	**Schedule**
< 6 months	2 doses given at least 2 months apart in 1st 6 months of life (*defer* 3rd & 4th dose) [1]
7 - 11 months	2 doses given 2 months apart [1]
12 - 23 months	1 dose [1] (*defer* 2nd dose)
≥ 24 months	***No*** PCV7 vaccination [1]

[1] Defer PCV7 for any healthy child with an incomplete series presenting at > 24 months.

Other Recommendations

1. Maintain lists for recall, once supplies are restored.
2. Report all cases of invasive pneumoccocal disease to your local board of health and the MDPH at 617-983-6800 or 888-658-2850.
3. Reduce PCV7 orders by 50% from pre-shortage levels.

The Department will keep you informed about any changes in the availability of PCV7 vaccine, as well as any corresponding recommendations for use. Updated information about the national PCV7 supply is available at http://www.cdc.gov/nip/news/shortages/default.htm.

MDPH would like to thank Massachusetts' providers for their cooperation during this difficult period. If you have any questions, please call MDPH at 617-983-6800 or 888-658-2850.

Time to Think About Flu Vaccine For the 2004-2005 Flu Season

The amount of influenza vaccine that the Massachusetts Department of Public Health (MDPH) will be able to purchase and distribute for the 2004-2005 influenza season may not be known until August. In addition, the Advisory Committee on Immunization Practices has recommended influenza vaccination for all children 6 – 23 months of age. MDPH is encouraging health care providers not to rely only on state-supplied influenza vaccine, but to place orders now for vaccine for the 2004-2005 influenza season.

MDPH purchases influenza vaccine on an annual basis and prioritizes its distribution to those at highest risk of complications from influenza. State-supplied vaccine is primarily distributed to local municipalities for use at public flu clinics for high-risk individuals who may not otherwise have access to vaccine. State-supplied vaccine is also prioritized to long-term care facilities for their residents and to pediatric practices for children 6 – 23 months of age and high-risk older children.

Even if MDPH is able to purchase the same number of doses as last season, state-supplied vaccine will not meet the demand for flu vaccine in Massachusetts. Health care providers who have not already done so should place their orders for flu vaccine now. The earlier orders are submitted, the better the price is likely to be.

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You Be The Epi

A 75-year-old male born in Brazil, with a history of hypertension, gout, and end stage renal disease for which he is receiving dialysis was admitted to a long-term care facility in September. He has no history of alcohol/drug abuse or smoking.

In February he became ill with fever and productive cough for several days, preceded by upper respiratory symptoms for two weeks. He had been treated with erythromycin and now complained of shortness of breath. He was transported to a local hospital emergency department.

A CT scan revealed bilateral upper lobe infiltrates. The diagnosis was pneumonia. After treatment, the infiltrates resolved, but the fevers continued. Subsequently he was transferred back to his facility.

Could this be tuberculosis (TB)? This patient has some classic symptoms of TB – fever (which did not resolve on antibiotics), productive cough, and an abnormal CAT scan of the lung. He is also at higher-risk for TB as he is elderly, on dialysis, and from a TB endemic country. TB should have been considered in the differential diagnosis.

Two months later he was again admitted to the hospital with fever, chills, nausea, and severe headache for weeks, with a 20-pound weight loss over 3 months. A CT scan of the brain showed multiple small lesions. Numerous tests were performed including a lumbar puncture and blood cultures.

What other information would you obtain to support a TB diagnosis?
Does he have a history of exposure to TB? Did he know anyone with TB? Did he have a tuberculin skin test? (All TB suspects should have a tuberculin skin test.) Because of his history of "pneumonia" and abnormal chest CAT scan, it is advisable to obtain sputum specimens for a smear for acid fast bacilli (AFB) and culture.

A cervical lymph node biopsy was performed. The lymph node pathology report showed a necrotizing granulomas and was positive for AFB (likely TB.) The cerebral spinal fluid was positive for AFB, but the endotracheal aspirate and sputum smears were negative. At this point he was placed on respiratory isolation for suspected disseminated TB. He was started on four-drug antituberculosis therapy and reported to the local board of health and the TB Division at the Department of Public Health as a TB suspect.

At this point, what is the role of the health department? Would you conduct a contact investigation? If yes, who would you test? What would you consider the exposure period to be?

Because this patient has suspected disseminated TB disease with pulmonary involvement and a history of "pneumonia" in the recent past, you should consider that he was, in fact, infectious and a contact investigation is required. To determine who should be tested, you must first determine the period of infectivity, using the contact investigation tool "Establishing Period of Infectiousness Chart" [1] as a guide. For this patient, who has symptoms, negative AFB respiratory specimens and non-cavitary disease, the period of infectivity is ten weeks prior to the onset of symptoms. Thus, the exposure period for this suspect started in mid-November.

Who would you recommend for testing? In the long-term-care facility, the roommate, health care staff and patient's visitors who spent eight hours or more in the presence of the patient[1] during the period of infectiousness should be tested. In that group, a high-priority for immediate testing and follow up would be the roommate and other residents who may have medical risk factors that increase the risk of progressing to TB disease, once exposed and infected.

In summary, this patient had a complicated history and TB was not suspected and not diagnosed until 5 months after the onset of respiratory symptoms. This led to prolonged potential exposures in a congregate setting that required extensive follow up.

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[1] *"Establishing the period of infectiousness chart"* Division of Tuberculosis Prevention and Control contact investigation protocols

In addition to the chart referenced above, the Division has contact investigation tools and educational materials to assist in contact investigations. Please email : Kathleen.Hursen@state.ma.us or denise.lancto@state.ma.us or call (617) 983-6970 to request any of these materials. The materials include:

Brochures
Someone I know has TB…What do I do now? (in multiple languages)
Your TB Test (in multiple languages)
BCG (in multiple languages)

TB Nursing Case Management Protocols: Contact Investigation section
Contact Investigation Prioritization Checklist
Contact Investigation Transmission Risk Assessment

HIV/AIDS Surveillance

Epidemiological Profile of HIV/AIDS among US-Born and Non-US Born Populations in Massachusetts

The Massachusetts population is very diverse. Twelve percent are immigrants, refugees, and others born outside the U.S. In addition, 3% of the Massachusetts population were born in Puerto Rico, U.S. territories, and U.S. Dependencies.

As of December 1, 2003, a total of 14,562 people were living with HIV/AIDS (PLWHA) in Massachusetts. Of these, 10,351 (71%) were born in U.S., 1,814 (12%) were born in U.S. dependencies, mostly Puerto Rico (11.5%) and 2,397 (16%) were born in countries other than the U.S. The demographics of PLWHA in Massachusetts who were born in the United States or its dependencies and PLWHA who were born outside of U.S. is described in the chart to the right.

The proportion of PLWHA who were born in countries other than the U.S. has been increasing. In 1992, 8% of AIDS cases were diagnosed among people born outside of the U.S. Ten years later, in 2002, 29% of AIDS cases and 27% of HIV infection cases were diagnosed in people born outside the U.S. The proportion of cases among those born in U.S. dependencies stayed the same, at approximately 12% of all HIV/AIDS cases.

Persons born outside the U.S. or its dependencies are more likely to be simultaneously diagnosed with HIV and AIDS. Simultaneous diagnosis is defined as less than two months between HIV infection diagnosis and AIDS-defining condition indicative of severe immunocompromised. This may be due to health seeking behavior, access to care, concern about stigma and knowledge of HIV/AIDS status.

The profile of HIV/AIDS in the foreign-born needs to be considered in the development and delivery of HIV/AIDS prevention, education, health care, and support services.

Demographic Profile of PLWHA In Massachusetts Based Upon Country of Birth

	US - Born		*US - Dependencies**		*Non US - Born*		*Total*	
	(no.)	*(%)*	*(no.)*	*(%)*	*(no.)*	*(%)*	*(no.)*	*(%)*
Gender								
Male	7,704	(74)	1,260	(69)	1,459	(72)	10,423	(72)
Female	2,647	(26)	554	(31)	938	(39)	4,139	28)
	10,351	(100)	1,814	(100)	2,397	100)	14,562	(100)
Race/Ethnicity								
White	6,533	(63)	23	(1)	305	305)	6,861	(47)
Black	2,475	24)	14	(1)	1,407	(59)	3,896	(27)
Hispanic	1,224	(12)	1,777	(98)	539	(22)	3,540	(24)
Asian	34	(0)	0	(0)	130	(5)	164	(1)
Other/Unknown	85	(1)	0	(0)	16	(1)	101	(1)
	10,351	(100)	1,814	(100)	2,397	(100)	14,562	(100)
Risk of HIV-Infection								
Men who have Sex with Men (MSM)	4,133	(40)	135	(7)	476	(20)	4,744	(33)
Injecting Drug Users (IDU)	3,269	(32)	1,049	(58)	137	(6)	4,455	(31)
MSM/IDU	400	(4)	51	(3)	27	(1)	478	(3)
Heterosexual	1,127	(11)	359	(20)	511	(21)	1,997	(14)
Blood/BloodProducts	93	(1)	9	(0)	30	(1)	132	0.9)
NIR	1,245	(12)	206	(11)	1,211	(51)	2,662	(18)
Pediatric/Other	84	(1)	5	(0)	5	(0)	94	(0.6)
	10,351	(100)	1,814	(100)	2,397	(100)	14,562	(100)
Residence at HIV/AIDS Diagnosis by Health Service Region								
Boston HSR	3,432	(33)	331	(18)	1,000	(42)	4,763	(33)
Central HSR	845	(8)	272	(15)	137	(6)	1,254	(9)
Metro HSR	1,211	(12)	66	(4)	499	(21)	1,776	(12)
Northeast HSR	1,296	(13)	332	(18)	407	(17)	2,035	(14)
Southeast HSR	1,654	(16)	128	(7)	259	(11)	2,041	(14)
Western HSR	1,209	(12)	424	(23)	40	(2)	1,673	(11)
Other/Unknown	7	(0)	0	(0)	3	(0)	10	(0)
Prison	697	(7)	261	(14)	52	(2)	1,010	(7)
	10,351	(100)	1,814	(100)	2,397	(100)	14,562	(100)

**Includes Puerto Rico, U.S. Virgin Islands and others for which US Dependency was not specified or known*

Massachusetts HPV Sentinel Surveillance in Women

The Human Papillomavirus (HPV) Sentinel Surveillance System (HSSS) is a three-year CDC-funded national study currently being conducted at six sites throughout the United States, including Massachusetts. Starting in January 2003, the surveillance system monitors trends in the prevalence of high-risk HPV types among women, examines risk factors for high-risk HPV infection and determines correlates between high-risk HPV infection and cervical cytology (Pap smear).

Genital HPV infections are sexually transmitted infections of significant public health importance because of their high prevalence and their causal association with anogenital cancers, especially cervical cancer. Until now, there have been few attempts to track rates and types of HPV infection or define the epidemiology of HPV infection in the US population.

There are many types of HPV. About thirty of these types cause mucosal genital site infection and they are classified according to their oncogenic potential either as "high risk " or "low risk". High-risk types, the most common being types 16 and 18, are those associated with abnormal Pap smears that could potentially progress to cervical cancer over time. Low-risk HPV types, the most common being types 6 and 11, are associated with a benign condition, genital warts. Most women with HPV do not develop symptoms and do not know they were exposed to the virus. Most HPV infections are subclinical.

The study is being conducted across Massachusetts in family planning clinics, HIV clinics, STD clinics, and primary care centers. The family planning sites are located in Springfield and Fitchburg, and the STD, HIV and primary care sites are located in the Boston area. Women aged 18-65 years who come to one of the study sites and are due for a Pap smear are offered study participation. A questionnaire is completed and, in addition to a Pap smear, participants get a DNA test for high-risk HPV (the Hybrid Capture II).

Preliminary data from the nationwide database provide an initial view of high-risk HPV burden in U.S. cities (This includes data through 10/6/03, with 1292 complete records.) Overall, high-risk HPV prevalence was 26.9% (STD 24.7%, HIV 40.9%, family planning 29.2%, primary care 21.5%), with a range of 23.4-30.5% across cities. Prevalence decreased with increasing age, from 43.4% among the 13-19 year olds to 11.6% among women aged 50-65. High-risk HPV prevalence by cervical cytology was: normal 20.8%; ASCUS 44.4%; ASC-H 30.4%; LSIL 90.4% and HSIL 85.7%.

Preliminary data specific to Massachusetts is also available. (This includes data through 3/19/04, with 605 complete records.) Overall high-risk HPV prevalence was 24.1% (STD 25.6%, family planning 26.4%, primary care 8.8%). Prevalence also decreased with age from 30.4% in the 18-19 year olds to 11.7% among women over the age of 35. High-risk HPV prevalence by cervical cytology was: normal 13.9%, ASCUS 41.4%, ASC-H 75.0%, LSIL 83.7%, HSIL 88.9%.

The results of three years of data collection will be useful for prevention and detection of HPV infection in several ways: (1) understanding of the behavioral, racial/ethnic and geographic variations of high-risk HPV prevalence, (2) better characterization of the variety of cervical cytology among high-risk HPV infected women, (3) education of women about HPV infection and long-term sequelae, and (4) informing HPV infection and cervical cancer prevention programs (including future HPV vaccine trials and potential immunization campaigns).

For more information, contact Laura Smock (HPV Program Coordinator) at 617-983-6943 or Sylvie Ratelle, MD, MPH (Principal Investigator) at 617-983-6945.

Using the Internet for Sexually Transmitted Disease (STD) Disease Intervention Services

In large urban centers across the United States and in Massachusetts, there has been an observed association between infectious syphilis and the use of the Internet as a means for men who have sex with men (MSM) to meet sex partners. Often the only link that these men have to their Internet partners is an e-mail address. The Division of STD Prevention has developed protocols for using the Internet to contact partners for education and referral for STD screening (also known as disease intervention services).

Infectious Syphilis*				
		2001	2002	2003
Total Cases of Reported Syphilis		105	197	257
Gender	Male	78 (74%)	160 (81%)	229 (89%)
	Female	27 (26%)	37 (19%)	28 (11%)
Reported Sexual Orientation Among Male Cases	Non-MSM	25 (32%)	47 (29%)	52 (23%)
	MSM	53 (68%)	113 (71%)	177 (77%)
HIV Status Among MSM Cases	HIV+	35 (66%)	51 (45%)	73 (41%)
	HIV-/Unknown	18 (34%)	62 (55%)	104 (59%)

During 2003 the Division of STD Prevention identified 177 infectious syphilis cases in MSM. Interviews were successfully completed with 106. Of these, twenty-nine (27%) reported that they used the Internet to meet partners. On average,

continued on page nine

Refugee and Immigrant Health

Communicable Disease Control in Immigrant and Refugee Communities: Considering Stigma, Confidentiality and Public Health

Infectious diseases such as HIV infection and tuberculosis (TB) are associated with significant social stigma in many communities, including refugee and immigrant communities. Bilingual and bicultural outreach educators from the Refugee and Immigrant Health Program, working in partnership with local public health and clinical providers, provide follow-up and outreach for individuals with TB, HIV or other infections. These activities can be challenging if sociocultural issues such as stigma are not appreciated. A critical factor is the establishment of a professional relationship with the patient, and central to this relationship is the protection of patient confidentiality.

When infectious tuberculosis or another communicable disease is identified in a school or worksite, there is typically a contact investigation, the purpose of which is to identify and screen those who may have been exposed and to offer treatment as appropriate. Numerous layers of government, educational, and medical systems may be involved. Levels of knowledge of guidelines regarding confidentiality and public release of information may be varied; therefore, potential breakdowns in the maintenance of patient confidentiality are a concern. Further, in small newcomer communities, as the number of defining characteristics increases, the likelihood of allowing identification of an individual also increases. The following case studies from patients with tuberculosis illustrate how such a situation may affect treatment and follow-up of individuals:

Case 1: An adult male immigrant was diagnosed with tuberculosis. Contact investigation by public health officials revealed household members that had been exposed to and infected by the index patient. Among these were school-aged children whose abnormal chest radiographs were consistent with active disease.

Outreach educators and public health nurses worked to educate the family about tuberculosis and its treatment. Shortly after the cases were identified, information about the family appeared in the local newspaper, including gender, classes at school, ethnic background, and after-school activities. In addition, it was noted in that the students would be absent from school for a defined, extended period. While technically not releasing the patients' names to the public, such information identified the patients within the community.

This situation caused great difficulties in maintaining the family in treatment. Despite the anger and embarrassment felt by this family, all completed their treatment. This success was largely facilitated by the efforts of the local public health nurse who re-established a relationship of trust and caring with the family to keep them in treatment.

Case 2: A student was diagnosed with active TB with an abnormal chest x-ray, positive sputum smear for acid-fast bacilli, and months of coughing. The student was a member of an immigrant family. The identity of the student was revealed to teachers at the school but not officially to the students; however, very quickly, the student began to receive phone calls from other students to find out if s/he was the one who had TB. In addition, information including the student's school, grade, and ethnicity was released to the news media. As a result, the story was reported by local TV stations and in newspapers and discussed on the internet.

After much community reassurance and education, the student was able to return to school and finish treatment. Local public health officials had already started extensive contact tracing. It appeared that the media attention had led to widespread anxiety in the newcomer community and may have inhibited investigation activities.

Case 3: A young adult refugee was living in the U.S. for many years when diagnosed with active TB after a period of coughing. She had recently started working at a new company. She missed several months of work as a result of having TB. The local newspaper reported that an individual of the patient's ethnic background who worked at the specific business had been diagnosed with infectious TB. The patient suffered great anxiety because of the suspicions and fears of her new coworkers. Because of the social stigmatization, the patient was not able to return to that small workplace.

The release of identifying information can have serious personal and societal consequences in communicable disease control and prevention. Specifically for refugees and immigrants, breaches of confidentiality, whether intentional or inadvertent, create suspicion of public health authorities and heighten social stigmatization both within the ethnic community and between the general U.S. population and foreign-born communities. Refugee and Immigrant Health Program staff has noted adverse economic consequences for patients, such as job loss. To avoid adverse consequences and stigmatization, immigrant families may deny their risk of serious health problems or avoid seeking care when symptomatic.

Successful communicable disease control and prevention activities depend on establishment of trust and confidentiality with all communities and patients. Care should be taken to minimize release of information that might be potentially identifying. Assure the patient that, while confidentiality will be maintained, some information may need to be released and, unfortunately, health staff cannot control how information moves within communities. Public health workers can also educate other involved parties about the need to preserve patient confidentiality and not release information that could lead to the identification of patients.

The Cost of Suspected Tuberculosis Cases to the Massachusetts Department of Public Health: 2000

The burden of tuberculosis (TB) has traditionally been measured through surveillance for cases of disease. However, cases represent only a small proportion of the workload of TB programs. As TB cases decline, evaluation of suspect cases that turn out not to have TB will consume a greater proportion of the time and resources. In Massachusetts, each suspected case of TB requires an investigation by local board of health and/or TB Division staff to confirm or rule out a TB diagnosis. Resources are dedicated to surveillance, diagnostic and treatment services, case management, and contact investigations around potentially infectious patients.

In 2000, 642 suspected TB cases were reported to the TB Division. Of these, 285 (44%) were determined to have active TB using the Centers for Disease Control and Prevention (CDC) surveillance case definition; 24 (4%) were verified as active TB cases that transferred from outside the state and thus did not meet the criteria to be included in the annual morbidity total (Non-Counted Cases), and 333 (52%) were determined to not have active TB (Not TBs). Despite an overall decline in the number of TB cases since 1993, more resources are being used to evaluate increasing numbers of TB suspects. During 1993-1999, the number of TB suspects reported to the TB Division increased from 685 to 887, and the proportion of TB suspects reported for each verified TB case increased by 73% (1.9 suspects per TB case in 1993, 3.3 suspects per TB case in 1999).

In order to estimate the costs incurred by the TB Division and local boards of health for Not TBs and Non-Counted Cases in 2000, the TB Division collaborated with the CDC to conduct a retrospective cost analysis. Annual costs were collected for personnel, travel, hospitalization, medications, laboratory tests, facilities, equipment, supplies, communication, and miscellaneous expenses (including incentives/enablers). Costs were collected for the functions of program operations/administration, data management, confirming case status, providing diagnostic and treatment services, and conducting contact investigations.

In 2000, the total cost to public health from Not TBs and Non-Counted Cases was an estimated $1,193,537; of this, 92% were state costs and 8% were local board of health costs. Of the local board of health costs, 73% were Boston costs. Of the total costs, 56% was for personnel, 21% for hospitalizations, 11% for laboratory tests, 6% for medications, and the remaining 6% for communication, equipment, facilities, supplies, transportation, and miscellaneous expenses (including incentives and enablers). The average cost for a Not TB was $3,330, and for a Non-Counted Case, $3,525.

Personnel costs accounted for the largest proportion of the total costs. Of personnel costs, 45% was for program operations/administration, 10% for data management, 22% for staff with both administrative and data management roles, 16% for diagnosis and treatment, 6% for investigation of case status, and 1% for contact investigations. The study also examined the amount of time nurses and outreach educators spent with Not TBs and Non-Counted Cases, and therefore not devoted to other activities. Nurses spent a total of 460 hours (mean- 3.1 hours) with Not TBs and 156 hours (mean- 3.2 hours) with Non-Counted Cases. Outreach educators spent a total of 177 hours (mean- 8.8 hours) with Not TBs and 178 (mean- 7.1 hours) with Non-Counted Cases.

In 2000, an estimated $1.2 million was spent on Not TBs and Non-Counted Cases in Massachusetts. Maintaining an active surveillance system for suspected TB cases is vital for TB elimination, and must be taken into account when funding TB programs. The financial burden from this population should be taken into account when allocating resources to TB control programs in the future.

Public Health Nurse Spotlight

Public health nurses have been described as independent, creative, compassionate, and skilled managers, who are able to mobilize community resources in order to preserve, protect and enhance the health of the people in their community. Deb O'Neill, Everett Public Health Nurse, has recently been recognized by her community as exemplifying these qualities. Deb has been with the Everett Health Department for 4 years, and is the second person to be been named Employee of the Month by the Mayor. Deb describes Everett as a close-knit community of 38,037 where she has lived for 25 years with her husband Kevin and their 5 daughters. Deb O'Neill's coworkers described her as: "having a wonderful manner", "always willing to help", and "always with a smile". Deb "goes above and beyond the call of duty".

Deb is involved in more than 'routine' public health roles and communicable disease surveillance. With Janet Leahy of the Malden Health Department she helps manage the Malden Medical Center TB clinic. Deb is proud of the fact that in four years of involvement in TB clinic she has only had 2 non-adherent patients. Deb also runs flu, rabies and blood pressure clinics, and in addition, conducts over 100 home visits yearly, to provide flu vaccine for homebound elderly patients.

While the elderly hold a special place in Deb's heart she is also very involved in protecting the health care needs of the city's children. Deb is on the Joint Committee for Children's Health Care in Everett, and 2 subcommittees: fundraising and parent university. She works with community leaders, health care

continued on page nine

New Educational Materials On SARS and Other Respiratory Illnesses For Health Care Providers

As part of the Massachusetts Department of Public Health's (MDPH) preparation for the possibility of re-emergent SARS, the *Severe Acute Respiratory Syndrome (SARS) Surveillance and Response Plan for Massachusetts: Guidelines for the Identification, Management and Control of SARS* has been developed. The *Plan* contains practical, specific information for healthcare providers, local public health professionals and first responders who work in a variety of settings.

MDPH interviewed healthcare providers throughout Massachusetts to identify key needs for SARS resources and materials as part of ongoing SARS education and outreach. Based on their feedback, it became evident that providers desired educational information on respiratory illnesses in general, such as influenza and the common cold, as well as on SARS.

Based on this input, MDPH developed the following:

- Table Top Booklet and Public Health Information Sheets - *Controlling the Spread of Respiratory Illnesses, including SARS*
- Respiratory Hygiene Poster - *Your Health is in Your Hands*
- Hand Hygiene Poster - *Your Health is in Your Clean Hands*

The SARS Surveillance and Response Plan and educational materials can be found on the MDPH website at http://www.state.ma.us/dph/. Click on the 'SARS' link on the right side of the page. The SARS educational materials can also be obtained by calling 617-983-6800.

Using the Internet for STD Disease Intervention Services

Continued from page six

there were seven partners reported per case interviewed.

In January 2004, the Division of STD Prevention created a protocol for contacting sex partners of cases using the Internet. A public health profile was established on a popular Internet site used by MSM. Interviews with four index cases (who met their partners online), using the Internet partner notification protocol yielded forty-six partners. Of these partners, an estimated twenty-four (52%) responded to online partner notification, while twenty-two (48%) did not respond.

The advent of popular on-line chat rooms and the large increase in infectious syphilis among MSM warrants the use of the Internet as a useful new tool for STD prevention efforts. In contrast to anonymous partners met in sex clubs, bathhouses and adult bookstores, effective disease intervention is possible for Internet partners. The Division of STD Prevention intends to continue and expand online prevention activities to include banner ads, links to sexual health promotions sites, and individual outreach and education. For more information contact David Novak, LICSW, Syphilis Elimination Coordinator for the Division of STD Prevention, at 617-983-6956 or David.Novak@state.ma.us.

Nurse Spotlight

continued from page eight

professionals and parents in enrolling, educating and advocating for health care coverage for children. The parent university committee offers courses every spring in the area of parenting and mental health. Deb works with the Everett Community Health Improvement Partnership, which raises community substance abuse awareness.

Realizing the importance of health education, Deb utilizes Everett Cable TV to provide public health updates and infomercials to the community. She participates in Spring and Fall Festivals, raises money for the Susan G. Komen Foundation for breast cancer awareness, assists with National Depression Screening Day and runs a winter clothing drive for the homeless. During holiday seasons, Deb can be seen decorating the health department lobby at City Hall.

While working and raising her family, Deb managed to attain a bachelors degree with honors last year from UMass Boston. She is also very involved in the lives of her children, for example she was the Everett High School basketball Booster Club president for 4 years and the hockey Booster Club president for 2 years. Deb is also a member of the Emblem Club which raises funds for her community.

Deb summarized the rewards of her profession by recounting the story of one of her patients who moved to another community during the course of her tuberculosis treatment. The patient kept saying to her new public health nurse "I love Debbie". Deb feels that her job is made easier by her Health Director, Ann Marie Messina, who she describes as very supportive and professional; her nursing colleague Colleen Reska, and all the health department staff.

The TB Division is pleased to recognize Deborah O'Neill for her dedication and commitment to public health. The Everett Health Department is fortunate to have her on their team.